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83594183.q MPPPSPLLPPPLLLGLH- AAAAVSEVSLAMPKNALITPPATAAFAARIDAAA S CNEPGDCANSG GGGVTAVAVEGLGVAATEVPPDVICGSLSPIAKL TPSNAAIAGCGGG-VAG-CTAEVLVDLIAFGSGLCVP DLSPLTRIQL

15230921.p MLRLLFIVRLPFMLPAS- ERSPNSPEVLENIKSTFSET KSDDVFVKTWHRN- SACEAGIVCNSDGN - VVEINLNGSRSLINRDDDRGRTDLPDPDHC-DLKKEKL- AIDSLQLEL

83505015.q MAKAPG-PVYLLFLILALPCCLIPHRGAQP-AANCARJULLIKRAVCDP- AVLAGWNNTAAP- AACCSFWYVCDTAG- RVTINSLISANTNVSGEVSDAVGSSLSSVLDIYVNNINGTPTSVYR- CVSLVRYLNDSONYLGCEPAPAVGVLGENLTLVLSENYETGCHIPKSLERLQLEL

AK100082.q MAFFPSGKAYYLHLLLIALPLPSLVARRGAAQQGVUDKQOLLQVKRAVCDP- AAALASKWDAAP- ICRVVVYVCDGGGT- GRVTSLSLPNVAVAGVPPDAI3GGLTALTIVLNLQNTS VGGVPPAFLYN- LTAITSIDISMSAISCEPADIDR- LGKNLTYLLDNNDNPTCIPPAVSKLKNLKV

83511121.q MAN-KRYASFFLFMMPFSLLHKSYFQLVNQSDEHQQLLPIKRRHGS- PVLRGRWSSNS- AACCNWGHICTD- GVVTCIGSLLNQTFIKI- IPFSICLPLKNLTHLDSVNTNISSEPTMLYN- CSNLKYLDDLSNNAFAGKCPDINS- LPSALDLSNNEPDTGRIPI-SIGLFRKL

83511124.q MAN-KRVNFNLFVFSLLHKSYFQLTNQSNDEHQQLLPIKRRHGS- PALGRWNSTT- TAICNNEGICTN- GAVIGLISLNQTFIKI- IPFSICLPLKNLTHLDSVNTNISSEPTMLYN- CSNLKELDLDSNNAFDQCPDSDINH- LSALLESHNLSCNHEPTGRIPI-SIGLFRKL

83511174.q MTN-STDNLNLNL- FFSGS- SAELEDDGGGLQILLIKRHMCP- AAFSSNEVRSSNSFGYDPPVQVACT- DGQVTSLSFQSFCQIAN- IPASICSLKNLKVLLDSYVNLTGDPPTVLYN- CSALQBLDLSNNEELCSPSNIDK- LSLGMCHNLSCNHYTCGCVPSAIARFLKEL

83511182.q PAV-YNILFLFSLFSL- TAQP-SADEQKQDNDP- APLSSWSSSTG- N-TGQVTSLSFPLSLHIA- RHLADMOPASAAAAD- CSEGVGNCATNTGGGGGAGVVE- LSLMCHNLSCNHYTCGCVPSAIARFLKEL

83543323.q MSN-TYLPPLPALVACVLLLA- AGCAAAACGRDILVIRKGWCNP- RHLADMOPASAAAAD- CSEGVGNCATNTGGGGGAGVVE- LSLMCHNLSCNHYTCGCVPSAIARFLKEL

83543328.q MGKVAADNPVHLVHTILLAS- LLFTCLFHNCETITRDDDKAVLLIERSWEGS- VTVN-WSSVYI- EDCCNPEGINCID- GFWTGILSTGHGLNN- LPAAICSLKTLKSLIDDSRNHSIIFGSPDTALYN- CSNLRVLLDLSNNEELCSPSNIDR- LSERLWYINLIAEWSNIDPSSIGOLKWLTLN

15239540.p MTR-LPLPFLFFFRTSIPLS- VFSQFNQSTLNLKRDIDP- PSIRLWNNTS- SICNNEIICTA- GNVTCINFKNQNETGVPPTTICDLSNLNLDSPNYPAGEPPTVLYN- CTRLQYLDLSNNEELCSPSNIDR- ISPELWYDLAEPGSCPTKSLRISMLK

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lias_TGFbR
2phk_PhK

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83594183.q NVSONSFITGAPPWRAASPGTVIAAGDNGFFEKIEETFPDEITALINTLYLISAAITCIVI PPOIGNAKRIVDESDNVA- CEPPEPDTKLTNQDQEELN- SLHGBELPAG- FGNLTRQOFFDASMNHDLGCSSELRL- ITQEVSELELYNFTEDVPS- EFGFKELVNNTGVPSELEOKSPDLDN

15230921.p SINASGICGIEPWSSKDURKLFLVGDNRFG- SHPFPREILNLTALQWVLYNSISITCKI- PECIKNLVLRLQNEELSDNQISCEIPKEIVQLNRPDEIYENDITCKLPLG- FRNLNTNEREDASNN- SLECDPSSELRL- FUKNIVSPICMRENRITGEIPEIPKEFGDFKS- LAALSLYRNOLTCQPRRLGCSWTA-FKY

83505015.q MLDNNNLCTGHP- CEGEDLTSLLTLLIS-TNK- LGPGQLPESFKNLTKTTLWARKKCCLVCDM- PAVVAADMPILVNLDAVAVNLTSIIPGHWSLKQOCLELPANKLTDIVVADGAFAAVNIVFIDLSANLKGCPDQDFGLQKQIEVHLYMNESECIPASTG- CRIPALKEIILFNSLTCGVPSELEOKSPDLDN

AK100082.q TLNCNQLTGCTP- AALGELTSLETLKIE- VNQ- FTFGELPGSFKNLTKTTLWARKKCCLVCDM- PSVYTEMMEYMDLQNEEFTSISIPPGHWNLKQOYLYEYNOITQDGVVNN- GKIGAASVYIDLQISEN- QLNGTIPESFGSMNNITN- ALTNNFSCSEIPASIAQPSLVMKLEENLQIPLCIPALKEIILFNSLTCGVPSELEOKSPDLDN

83511121.q LDLDNQFDRGPAEDI- NLADLERLGLA- VNP- FVPAFPFMFBGFKLTRITLWMSNINIEI- PESLSSRLRBNVLDLSNRSKTIQKHPDRLWQFKQGQIOLYLYANRTEIEIEN- ITALNIVEDVSA- ELGTFIDFCFGWTN- TLFDFLYFNLKSCSIPPSVGLPKL- DFLRFLNNMSGSPSLELKHSP- LAN

83511124.q LDLDNQFDRGPAEDI- NLADLERLGLA- VNP- FVPAFPFMFBGFKLTRITLWMSNINIEI- PENLSSRLRBNVLDLSNRSKTIQKHPDRLWQFKQGQIOLYLYANRTEIEIEN- VSALNIVEDVSA- ELGTFIDFCFGWTN- TLFDFLYFNLKSCSIPPSVGLPKL- DFLRFLNNMSGSPSLELKHSP- LAN

83511174.q VLDLNSFNGCAGVPGASIGCLVLELLI- SNA- FMPGPPIPNE- SKLTKITLWMSWNLTCI- PDLASALKEDLTLIDLSQKLMQKPKWMIKLOKEMLYLFLASNSCSEIGIY- ISTLNMQBDLSMN- KLGCSIPEDIANAKN- RLYLYNNNTGSPKQVSMPEPNL- DFLRFLNNMSGSPSLELKHSP- LAN

83511182.q VLDLNNRFNCNPGAGAAGLVEETLGLA- SNA- FEPGPVFKBFGKLTAKLWMSWNLTCI- PDLASALKEDLTLIDLSQKLMQKPKWMIKLOKEMLYLFLASNSCSEIGIY- ITALNQBDLSMN- KLGCSIPEDIANAKN- RLYLYNNNTGSPKQVSMPEPNL- DFLRFLNNMSGSPSLELKHSP- LAN

83543323.q ILDDNPFRTGAPAEETIANLAFERLGLA- DNG- FAPAVPPVPAFQKLTQITM- SKNNTGSEI- PEAFSSLTIDTLDLMSQNLTCIATPAFWRERQKERLYVNSISGELPNS- VITIANVLEDLSNQLEGGSEDFCNKNSLDFLYFNLKTCIAPASTG- RENLFEQDGPPELEKNS- LAN

83543328.q ILDNQFNGCAGV- AELNINIAVRLVRLGL- DNG- FLSGPVYPOFGNLNTLIVLMSKQKII- PAAMSKANNVMEFD- SISWMSLKRIVTLYNHNISGONIAP- IESTNIVLEDVSN- NLQCPEDIGOLEPDERFLENNHTCSPDPSVALFPLKINVNLVFLNQSPECIPOELKHSP- LEN

15239540.p NYQSEYDGFPP- SEIQLDSEEEPLDA- LNDKFTPAKIPBFGKLRKKM- BEAHL- SELSPVVFENNTIDPVDLSVWNLTSRIPDVFGLNQETCIPK- ISATLWVSLDLSAN- NLQGS- PVSIGNTKQVQNLENNKLT- EIPPVVQKPGKLFKEFIRNKQDIPAEIIVHNSK- PER

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2phk_PhK

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83594183.q IDVSTNALSCEIPPFMCKRMKPMRLMLDENNSCQIPATYANCCTLVRFRVSKNSMSECDVDCIWALPN- VDHIDLNQQTGCIGDGI- RAAILSSLDIACNRFGSCAPPSIGDASNEITID- ISNLSSCKIPASIGR- LARIGSINTARITCIAPIASGCSSTSTVNTETENKLACAGP- SELCTTLEIRNSLDD

15230921.p IDVSENLSCCEIPYPMCKKGVMLCHLMLCNRPTGQPPS- YACKL- LILRVSNNNSLSCMTPSCGMGLP- LQFLDLSSNYYEBCNLTDGDI- CNASLSSLDLSSNRRFGSCSPFQIQSGANSIVSVNLRLMMNKFSCIVPESFGK- LKEQSSHILDNLSCAIPKSLGCTSLVDLNEA- CNSLSEEDP- ESLGCSKILKLNINL

83505015.q LEVDFTNCTC- IPEPGCGLDGCGENIFTAANNLNGSIPERIA- ACTTLLQIPLPNNKLSQDVEPEADWTATK- IQFV- IQNNG- LTGCLPSTMY- SNLSSLVBNNQFRGSPAA- AA- QKFIACNNF- SIEPESLGNMPVQIDNLSNCNLSGQKPSKLV- QDLSKNOQISCEP- AE- CAMP- VENADDL

AK100082.q IEVDNNLTC- IPEPGCVDNRLRII- AACNRNNGSIPASLAC- CAPALLSLOODNLSECEVPAALWHTETR- LTIVLQDNNGHITGSLPEKLY- VNLRLYHNNRFRGSPATA- TIKQKENABNNLF- SIEPIDGFAACMPLQBDL- DRNOLSCAIPVTSASLGSEQONF- SNNORTGIP- AGC- GSM- VEL- LDD

83511121.q LEVNNNLSCCEIPGCVFNCNLKLYIVWVFNNSISCKLPSLDC- CCY- LONLMDYNNNSCEFFER- SISWVTTDQLESVWV- IESCFCFPQQL- WNFQFLDLSNNRFSCGP- PTTLA- GMKVRFAANNLSC- EIDWDLTG- ISQVTRVLDLSNQ- ISCLP- TGTGVLMR- NTYLNLS- ENSOISCP- AGC- FING- GNDLDD

83511124.q LEVNNNLSCCEIPGCVFNCNLKLYIVWVFNNSISCKLPSLDC- CCY- LONLMDYNNNSCEFFER- SISWVTTDQLESVWV- IESCFCFPQQL- WNFQFLDLSNNRFSCGP- PTTLA- GMKVRFAANNLSC- EIDWDLTG- ISQVTRVLDLSNQ- ISCLP- TGTGVLMR- NTYLNLS- ENSOISCP- AGC- FING- GNDLDD

83511174.q FEVNNNLSCCEPDTLCFNKLE- DVIWVFNNSISCKLPSLDC- CCY- LONLMDYNNNSCEFFER- SISWVTTDQLESVWV- IESCFCFPQQL- WNFQFLDLSNNRFSCGP- PTTLA- GMKVRFAANNLSC- EIDWDLTG- ISQVTRVLDLSNQ- ISCLP- TGTGVLMR- NTYLNLS- ENSOISCP- AGC- FING- GNDLDD

83511182.q FEVNNNLSCCEPDTLCFNKLE- DVIWVFNNSISCKLPSLDC- CCY- LONLMDYNNNSCEFFER- SISWVTTDQLESVWV- IESCFCFPQQL- WNFQFLDLSNNRFSCGP- PTTLA- GMKVRFAANNLSC- EIDWDLTG- ISQVTRVLDLSNQ- ISCLP- TGTGVLMR- NTYLNLS- ENSOISCP- AAV- WMGLYI

83543323.q FEVNNNLSCCEPDTLCFNKLE- DVIWVFNNSISCKLPSLDC- CCY- LONLMDYNNNSCEFFER- SISWVTTDQLESVWV- IESCFCFPQQL- WNFQFLDLSNNRFSCGP- PTTLA- GMKVRFAANNLSC- EIDWDLTG- ISQVTRVLDLSNQ- ISCLP- TGTGVLMR- NTYLNLS- ENSOISCP- AAV- WMGLYI

83543328.q FEVNNNLSCCEPDTLCFNKLE- DVIWVFNNSISCKLPSLDC- CCY- LONLMDYNNNSCEFFER- SISWVTTDQLESVWV- IESCFCFPQQL- WNFQFLDLSNNRFSCGP- PTTLA- GMKVRFAANNLSC- EIDWDLTG- ISQVTRVLDLSNQ- ISCLP- TGTGVLMR- NTYLNLS- ENSOISCP- AAV- WMGLYI

15239540.p DEHYNNFSCHEIPGLCSKA- AALAYI- SANMS- SCELP- ASLIF- CNSLNLXVW- SNNFSC- TFPAG- LTEV- IQEVN- ISCEP- PNWA- SNLVE- BDI- DNKKF- SIEP- EIDWDLTG- ISQVTRVLDLSNQ- ISCLP- TGTGVLMR- NTYLNLS- ENSOISCP- AAV- WMGLYI

lir3_IRK
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2phk_PhK

610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 80

83594183.q SGNLISCAVPASLAAPKTSLLNNNSDNLVSPPEELTSLIAAYSEESKGNPGGLCATNGVDFLRRCSPGSGGHSAATARTVVICLLAGLAVVLAALGAIVYIKRRRAEAEAEAAAGKVFGKKGFNDIKSPRVWAFDDEBVIDGVEDENLIGCGGSCNVYRYKLG... SCAVVAVKSHTRIRAAAAARASTA
 15230921.p SGNKLSCEIPVGLSALKLISLIDLSNQNLGSFPESTVSC... SPECGNSGLCSSLK-TRYLRPCPLGEK-HSQGKRKHL-S-KVDMCFIVAAILMFFLFSYVIFKTRRDKLN-KTVQKNDLQVSPRLINPNEMLTIDEIKSENLLPCCGCVYKVS LR SCETLAVHEHICPESSEIERS
 83505015.q SSNLQLSGCIPPSIASLNLSNLNLSNQNLSCOPAKFAIAYRSPFDNPITLCTSGLGSYLAGVRSCAGSPGASSGGVSPGLRAGLVAAGAABLVIVVALAFFAARDIPIRKRVAQREDWIKIIPFTDGFSEANAILRGLDENVLVCGGSCSVYRVAYIN RYTGGDG-AVAVKKTRTGAAKVDEERLE
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 83543323.q SGNLTDIPADLGYLNFNLNVSSNRLTGEPLTQGAAVDRSPLEN-SLCARE-GSGTNLPTCPFGGGGGGGHDELSKGLIVLFSMLAGIVVGSAGIAWLLRRKDSDVTD... DGGG-BEIN-NARKIDAKLD
 83543328.q SENKDFSPSIIPELIEFNLNLNSDNOEKGKCPNLSLQNEKFC... HFDADXPVCNER-... HLNKRLLIIFLALGMSVLLWLFKVKLPQRKONENTTTP-... NNSYREVAJKKIV-NMQNIDNLE
 15239540.p SGNLTDIPADLGYLNFNLNVSSNRLTGEPLTQGAAVDRSPLEN-SLCARE-GSGTNLPTCPFGGGGGGGHDELSKGLIVLFSMLAGIVVGSAGIAWLLRRKDSDVTD... DGGG-BEIN-NARKIDAKLD
 lir3_IRK -VFPSSSVFVDPWEVSRKIKT-LLREQQCSFMMV-BGN- ARDIIGKEBT
 lias_TGFbr EDPSLDRPFSEGTTKDLIYDNTTSGSGSPFLVQRT-... RAVAKTIN-ESASLREPIE
 2phk_Phk

810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 10

83594183.q ASAAMLRSPSAARRTASVRCREDDSEVVGILSSIRHVNVVKKLCLITSDG-AASLLVVYHLLNGSLYERLLEGGOK... LGGRGGLLWPERYDIAVGAARGFEYLHHG... DRPLILHHDVKSNSLILDEEKFRIADFGLAKLIDC... AATPDNTSAGVVAQGTLGYMAPEYEWTK...
 15230921.p STAMLSGDNNSRNSNG-... EPEAEVATLNSIKHVNVVKKLFCITCED-... SKLLVYBMYMNGNSLWEQLEHERR... GEQEIQHGRVVRQALAIQAAKGFEYHHHDL... DRPVHHRDVKSNSLILDEEKFRIADFGLAKLIIQADSVQRDF... SAPE-LVKGTCIYIAPEYEWTK...
 83505015.q REEFSVEDILGCVVRHVNVVKKLCLLQSKLRAE-... AKLVLVYDMDNSLQDVLHCRRAINDGRPVVAAVARARSARGGAPADMPDRPRAVAGQAGPYMMHBC... TPPIVHHRDVKSNSLILDEEKFRIADFGLAKLIAQAG-TPDIVTA... VAGSGFCYMAPECAVTRK...
 AK100082.q REEFSVEDILGCVVRHVNVVKKLCLLQSKLRAE-... TPKLLVYEMENGSLDKWLHGNKILLAGG... ATARAPV... RAPIDMLARVEVGAARGCFCYMHG... SPPIVHHRDVKSNSLILDEEKFRIADFGLAKLIVQAG-TPDIVTA... VAGSGFCYMAPECAVTRK...
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 83511174.q KEPRESEVRLQDOLIRHNVVKKLCCISSE-... TPKLLVYEMENGSLDKWLH... RERIGV... PGPIDMPIRLIAIDSDAARGCFCYMHG... SPPIVHHRDVKSNSLILDEEKFRIADFGLAKLILKAG-DDESFS... IAGTFGYMAPEYEWTRK...
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 lir3_IRK -PLNPSVWKCFTEHVVRLGVVSKQO-... PTLWVPLWPHQCLKSYLRSR... PEAEENNPRGRPPTLQEMIIMARET... DEAYL... TPKLLVYEMENGSLDKWLH... RERIGV... PGPIDMPIRLIAIDSDAARGCFCYMHG... SPPIVHHRDVKSNSLILDEEKFRIADFGLAKLILKAG-DDESFS... IAGTFGYMAPEYEWTRK...
 lias_TGFbr EARLKEVTDILRKVSRCHENNIIDQPKDITYEINT-... FFFFVLPDLMKQCLDFYLT... PEAEENNPRGRPPTLQEMIIMARET... DEAYL... TPKLLVYEMENGSLDKWLH... RERIGV... PGPIDMPIRLIAIDSDAARGCFCYMHG... SPPIVHHRDVKSNSLILDEEKFRIADFGLAKLILKAG-DDESFS... IAGTFGYMAPEYEWTRK...
 2phk_Phk

1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150

83594183.q TEKDVNSFTVVLLELVITGTA-... TMAEYGESRDIIVEVVS-... RRLLDSRDKVMHLDASIGEEWKECEAVRVLRVWVCSIRSPS-RPSMRVWVOMLEAAAGIR... EFAVVITSVKVVIP...
 15230921.p NEKEDVVSFQVVLLEMELITGKPP-... LETDPGENNDIVVNVWSVSKETNREMMMKIDTSHEDEX-KEDALKVLTILLLCDKSPQARPMKIVVSMLEIEESYNK... NSGEASYGESANDEITKV...
 83505015.q DEKVDDVVFQVVLLELTGKAA-... NDGGEHG-... SLADWARI-HYQSGCESIPADIDCITR-ACYSDEIEVFRVLMCITGATPASRPTMVKDQJILVKCSEQTHQCKCAESGQEEYEVAPLL... RGSRRKQPAKAGADDADERSDFDSIV...
 AK100082.q NEKDVDFVSFQVVLLELTGKVA-... HDGEHG-... SLADWARI-HYQSGCESIPADIDCITR-ACYSDEIEVFRVLMCITGATPASRPTMVKDQJILVKCSEQTHQCKCAESGQEEYEVAPLL... RGSRRKQPAKAGADDADERSDFDSIV...
 83511121.q NEKIDVVSFQVVLLELTGKVA-... NDGGEY-YOLAAWWR-QYEYGLSVDLIDECIRD-PTHVEDALEVFTLWVCTGEEIPS-RPSMKDVLVNLICFDRKSTR... IQGSLKHAVSETTLL...
 83511124.q NEKIDVVSFQVVLLELTGKVA-... NDGGEY-YOLAAWWR-QYEYGLSVDLIDECIRD-PTHVEDALEVFTLWVCTGEEIPS-RPSMKDVLVNLICFDRKSTR... IQGSLKHAVSETTLL...
 83511174.q SVKDVDFVSFQVVLLELTGKVA-... QDGGTESGSLAKWAK-... RYNNGGPVADLVDGEID-PSYLDMMVAPEELVVCTSESEAPRIPMSDVLIRLQCFDHSG-... THDGVVAKGVDI-... DDSDCIV...
 83511182.q NEKDVDFVSFQVVLLELTGKVA-... NDGGA... WOLAEAWR-RYKAAGGLHDVDEAIDCRAAFLDCAVAVFLLMICHGDDPA... RPSMKDVLVNLICFDRKSTR... GGILQDDICDETALL...
 83543323.q NEKDVDFVSFQVVLLELTGKVA-... NDAAD-FCLAEAWR-RYQKGPPFDWDADIRE-QASLYDIMSVP... RPSMKDVLVNLICFDRKSTR... KGSRRRSSSESGRWD...
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 15239540.p DEKIDVVSFQVVLLELTGKVA-... NNGDEH-TNLADPSWK-HYQSKPITAEEADFLK-ASTP... TMCNTLPS-RPSMKDVLVNLICFDRKSTR... EAEAPLLVSLSGRTSKRVED...
 lir3_IRK TTSSDM... SFTVVLLELTGKVA-... PYQQLS-... NEQVLFKMDGYYLD-QPDNCPERV... LRMWQFNPKURPQF... T... N... K... D... L... H... P... S... P... E... V... S... F... H... SEENK...
 lias_TGFbr FKRDIYAVLIVVFWIARRCISIGG... P... D... P... S... V... E... M... R... K... V... C... Q... R... N... R... W... Q... C... A... L... R... M... I... R... C... Y... A... R... L... A... P... K... I... K... M... Q... L... S... Q... B... G... I... K... M... Q... L... S... Q... B... A... P... A... H... P... F... Q... Q...
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